Trends in Acquirer Returns in Acquisitions of Indian Target Firms

Honors Undergraduate Thesis

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Abstract

Previous research found that both Indian acquirer and target firms earned abnormal positive stock returns around the announcement of an acquisition. This work will explore up-to-date changes in shareholder value creation around acquisition announcement, as measured by cumulative abnormal stock returns, for acquirers of Indian firms over time. Subgroups within the data sample will also be compared. A sample of fifty-five acquisitions of Indian target firms purchased by public acquirers with announcement dates ranging from 2000 to 2018 was analyzed using event study methodology. For each acquirer in the sample, daily abnormal stock returns were aggregated to produce cumulative abnormal stock return (CAR) values over fourteen-day (ten days prior to three days post announcement date) and three-day (one day prior to one day post announcement date) event periods. Average fourteen-day and three-day CAR values were negative for the full sample, and averages were significantly different over time and between subgroups. Regression analysis was then used to examine changes in CAR values over time in more depth for the full sample and six subgroups of acquirers: domestic, cross-border, acquirers of private Indian firms, acquirers of public Indian firms, small, and large. Results showed that abnormal stock returns around acquisition announcement date are trending toward zero for acquirers of Indian target firms, which is more consistent with results expected in developed markets. Additionally, return trends vary greatly between different groups of acquirers, with average pre-2008 CAR values serving as a predictor of trends over time.

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Fields of Study

Major Field: Business Administration; Finance

Minor Field: Environment, Economy, Development and Sustainability

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Introduction

Based on extensive research findings, it is expected that acquirers will have zero-to-slightly negative abnormal stock returns around acquisition announcement date. Despite this, previous research found that both Indian acquirers and acquirers of Indian target firms earned significantly positive abnormal returns around announcement date in the 1990s and early 2000s. Today, there is a lag in available research on the topic, with most papers only covering through the beginning of this decade, at the latest. This paper will examine acquisitions of Indian target firms to discover how acquirer shareholder value creation around announcement date, as measured by cumulative abnormal stock returns, has changed over time. The sample includes fifty-five majority acquisitions of Indian target firms by public acquirers with announcement dates ranging from 2000 to 2018. It is predicted that positive abnormal stock returns for acquirers of Indian firms have decreased over time as the Indian economic system became more efficient and the country's mergers and acquisitions market became more saturated.

Domestic and cross-border acquirers, acquirers of private and public Indian firms, and acquirers with below and above sample median revenue (small and large acquirers) will also be analyzed as subgroups to compare changes in cumulative abnormal return (CAR) values over time between groups. Acquirer revenue, announced total value, domestic versus cross-border acquirers, and acquirers of private versus public Indian firms will also be examined as independent variables in regressions to better understand their relationships with abnormal acquirer value creation around announcement date.

In 1991, the Indian government introduced the New Industrial Policy, which was the first step in liberalizing its economy and allowing mergers and acquisitions (M&A) to occur regularly within the country. After the implementation of this policy, other pro-business regulation followed, including the introduction of a policy that allowed Indian firms to invest significantly

more in outward foreign direct investment in 2004 and the removal of a requirement of approval from the Reserve Bank of India for outward foreign direct investment in 2005. Additionally, capital market regulations were loosened for Indian firms around the same time, giving them significantly greater access to both domestic and international capital markets by the early 2000s. Because of this, it has been argued that the "true opening" of the Indian economy occurred in the early 2000s, particularly 2004, as stated by Nayyar (2008) and Banerjee et al. (2014) in their respective papers on India's M&A market. Indian M&A activity has increased greatly due to these regulation changes. In 2018, India's M&A market was valued at $99.9 billion, showing immense growth from the previous year and making it the second-most targeted country in the world for acquisitions. Additionally, as the world's fastest-growing large economy, the outlook for continued M&A growth is positive.

This research can provide companies interested in purchasing an Indian firm with information on both changes in shareholder value creation around acquisition announcement date over time and with different deal characteristics. Results from this research can also be compared to acquirer value creation around announcement date in developed markets and other developing economies. Comparisons to historical trends in developed-country M&A markets can be used to make predictions about the future of Indian M&A.

The next section of this paper will provide an overview of existing literature relating to mergers and acquisitions in India and other relevant topics. Following that, hypotheses regarding changes over time in acquirer value creation in acquisitions involving Indian target firms and differences in acquirer returns between subgroups will be provided. Then, a detailed methodology description will be shared, techniques for analyzing relevant data will be described in detail, and results and implications will be discussed.

Literature Review

I. Mergers & Acquisitions in Developing Countries

Research on mergers and acquisitions involving firms in developing nations has become more common over the past few decades, but still lags behind research on mergers and acquisitions in developed nations. Existing works emphasize the fact that firms located in BRIC nations (Brazil, Russia, India and China), some of the largest developing countries, have become popular targets for cross-border mergers and acquisitions in recent years. Garabato (2009) credits this to the lifting of many economic sanctions in these nations in the 1990s, relatively cheap skilled labor, and a growing number of BRIC middle-class consumers.

As reported by Distler (2018), many papers find that acquirers in developed-country M&A markets have zero-to-slightly negative abnormal returns around announcement date. However, this is often not the case for acquirers in developing markets, where positive abnormal stock returns around acquisition announcement have commonly been reported in recent decades. For example, Stephen Dorai and Patolahti (2010) analyze thirty acquisitions involving United Kingdom-based acquirers and BRIC-based targets from 1999 to 2009 and report that acquirers earned significantly positive abnormal returns of 1.0%, on average, around acquisition announcement.

However, in a more recent research publication, Kinateder, Fabich, and Wagner (2017) find that abnormal acquirer stock returns in developing-market M&A are more consistent with those traditionally found for acquirers in developed-market M&A. In their sample of fifty domestic acquisitions within BRIC nations from 2006 to 2015, average acquirer stock returns were slightly negative, but not significantly different than zero, while target firm stock returns were significantly positive.

II. Indian Merger & Acquisition Market

a. Policy and Deregulation

The New Industrial Policy of 1991 was the first major step in liberalizing the Indian economy. However, Banerjee et al. (2014) argue that the true opening of India's economy and M&A market occurred in 2004 due to additional policy implementations and regulation removals. According to Nayyar (2008), this was driven by the introduction of a policy that allowed Indian firms to invest 100% of their net worth in outward foreign direct investment in 2004, which was shortly followed by the removal of a requirement of approval from the Reserve Bank of India for outward foreign direct investment. Additionally, capital market regulations were loosened for Indian firms, and by the early 2000s, they had significantly greater access to both domestic and international capital markets, which undoubtedly contributed to the large increase in Indian M&A activity at that time.

b. **Mergers & Acquisitions of Indian Target Firms**

Research that analyzes mergers and acquisitions of Indian target firms in greater detail finds that acquirers earn significantly positive abnormal returns around announcement date. For example, Ma, Pagan, and Chu (2009) analyze 1,477 acquisitions of firms in ten emerging Asian economies from 2000 to 2005, 134 of which involved Indian target firms. For the whole sample, average CAR values are significantly positive for two (0 to +1), three (-1 to +1), and five-day (-2 to +2) event periods. Acquirers of Indian target firms also created abnormal positive value, on average, over the event periods studied.

In a different paper, Kale (2004) analyzes 698 acquisitions that occurred in India from 1992 to 2002 and found that there was a large increase in acquisition activity in the country in the early 2000s. The work reports that acquirers of Indian target firms earned significantly positive abnormal returns which averaged 1.71% for the fourteen-day event period around announcement date (ten days prior to three days post announcement date). Kale notes that although acquisitions in developed markets do not on average create significant value for acquirers, this may not be the case in India due to less competition in the country's M&A market at the time.

Nagano and Yuan (2012) analyze acquisitions of Indian target firms with announcement dates ranging from 1998 to 2006. The paper finds that acquisitions, including purchases of private targets and acquisitions by foreign acquirers, increased greatly in the early 2000s. Average abnormal returns for acquirers of Indian firms were positive for both domestic and cross-border acquirers, but cross-border acquirers had significantly higher abnormal returns on average. Again, these findings do not align with research on developed-economy M&A markets, where acquirer value creation around announcement date has been found to be neutral or slightly negative in many cases.

c. Mergers & Acquisitions by Indian Acquirers

Research focusing on acquisitions by Indian acquirers also reports significantly positive abnormal acquirer value creation, as measured by cumulative abnormal stock returns around announcement date. Banerjee et al. (2014) examine Indian acquirer returns in three distinct time periods: 1991 to 2003, 2004 to 2007, and 2008 to 2011. Using a five-day event period around announcement date (two days prior to two days post announcement date) to analyze 538 acquisitions, the work reports that Indian acquirers earned abnormal positive returns, on average, from 1995 to 2007, but negative average abnormal returns from 2008 to 2011. Particularly, from 1995 to 2003, Indian acquirers earned abnormal positive returns of 2.96%, while from 2004 to 2007, they earned abnormal positive returns of 2.80%. From 2008 to 2011, average abnormal returns became negative but insignificant at -0.10%.

In their study of 268 domestic full acquisitions with announcement dates ranging from 2003 to 2008, Rani, Yadav, and Jain find that Indian acquirers earned significantly positive abnormal returns for three (-1 to +1), five (-2 to +2), and eleven-day (-5 to +5) event periods surrounding announcement date. The paper also finds that acquirer abnormal returns were significantly positive pre-announcement date and on announcement date but became negative in post-announcement date event periods. Additionally, acquirers of private Indian firms produced

more value around acquisition announcement than acquirers of public Indian targets, which is consistent with standard findings of developed-country M&A markets.

d. Current Overview

The Indian M&A market has grown significantly over the past few decades. According to Mergermarket, in 2018 merger and acquisition activity in India was valued at a record $99.9 billion, which was roughly 2.8% of the $3.53 trillion of global M&A deal value in 2018. India was the second-most targeted country in the world for M&A in 2018, and as the globe's fastest growing large economy, the nation holds great potential for future M&A expansion.

Despite the large growth of M&A in India, there appears to be a lag in research regarding value creation around announcement date for acquirers of Indian firms. This paper seeks to contribute updated information regarding abnormal value creation around acquisition announcement for acquirers of Indian firms by analyzing a sample of acquisitions with announcement dates ranging from 2000 to 2018. This should provide a more up-to-date overview and lead to a better understanding of changes in the Indian M&A market over time.

III. Other Relevant Merger & Acquisition Research

a. Value Creation by Domestic versus Cross-Border Acquirers

There is some disagreement in research findings regarding performance of domestic versus cross-border acquirers. In developed-market M&A research, Moeller and Schlingemann (2005) analyze 4,430 acquisitions by United States acquirers from 1985 to 1995. They find that, on average, cross-border acquirers produce about 1% less value, in the form of cumulative abnormal returns around announcement date, than domestic acquirers. Conversely, Kale (2004) reports that cross-border acquirers of Indian target firms had greater cumulative abnormal returns around announcement date than domestic acquirers of Indian targets. However, Kale found that this difference decreased over time, most likely due to increases in acquisition experience for Indian acquiring firms. Nagano and Yuan (2012) also found that from 1998 to 2006, cross-border

acquisitions of Indian target firms led to greater abnormal acquirer value creation than domestic acquisitions of Indian companies.

b. Value Creation by Acquirers of Private Targets versus Acquirers of Public Targets

As discussed by Koeplin, Sarin, and Shapiro (2000), there is consensus that a discount is applied to private firms, when compared to similar public firms, in corporate valuation. This discount is due to the illiquidity of private companies and often leads to higher returns around announcement date for acquirers of private targets than for acquirers of public targets. This concept appears to hold in developing-market acquisitions, as Nagano and Yuan (2012) report that cross-border acquirers of private Indian firms created higher abnormal value around announcement date, on average, than cross-border acquirers of public Indian firms.

c. Value Creation by Small versus Large Acquirers

Previous research has reported that small acquirers have higher abnormal value creation around acquisition announcement than large acquirers. For example, Moeller, Schlingemann, and Stulz (2004) examine the abnormal returns to American acquirers in more than 12,000 domestic full acquisitions from 1980 to 2001. The three-day (-1 to +1) CAR value for the full sample is significantly positive at 1.10%, but small acquirers have significantly higher abnormal value creation than large acquirers, with three-day CAR values of 2.32% and 0.08%, respectively. This difference is attributed to large firms paying higher premiums and pursuing acquisitions with negative dollar synergies, both of which can be explained by greater managerial hubris in large acquirers. Note that these authors define small firms as companies with market capitalizations in the bottom 25th percentile of firms listed on the New York Stock Exchange in a given year, while large acquirers are defined as companies with market capitalizations above the 25th percentile.

Hypotheses

The first hypothesis of this research is that cumulative abnormal stock returns around announcement date will become closer to zero, or even slightly negative, over time for acquirers of Indian firms, which would be more consistent with acquirer CAR values in developed M&A markets. This paper analyzes a sample of acquisitions with more recent announcement dates than other available research on the subject, so average acquirer CAR values around announcement date are predicted to be closer to zero, or more negative, than previously found. If acquirer returns in initial years examined in this research are abnormally positive, as was found in previous research by Kale (2004), Ma, Pagan, and Chu (2009), and Nagano and Yuan (2012), returns are predicted to decrease over time due to increased efficiency and volume in the Indian M&A market that began with the introduction of the country's New Industrial Policy in 1991.

The second hypothesis of this research is that cross-border acquirers of Indian targets will have higher cumulative abnormal stock returns around announcement date than domestic acquirers, as was previously found by Kale (2004) and Nagano and Yuan (2012). Cross-border acquirers will create higher abnormal value around acquisition announcement than domestic acquirers due to their greater level of experience with M&A.

The third hypothesis of this research is that acquirers of private Indian firms will have higher CAR values around announcement date than acquirers of public Indian firms, as previous research has consistently found that a discount is applied to private firms due to illiquidity. The private firm discount leads to lower acquisition prices and therefore greater acquirer returns.

The fourth hypothesis of this research is that small acquirers, which includes firms with revenue below the sample median prior to acquisition announcement, will have higher CAR values around acquisition announcement than large acquirers, or firms with revenue above the sample median prior to acquisition announcement. This difference is due to managerial hubris in

large firms, which leads to paying higher acquisition prices and pursuing deals with negative cash synergies, as reported by Moeller, Schlingemann, and Stulz (2004).

To test these hypotheses, cumulative abnormal return (CAR) values will be generated through event study methodology. Unique Market Model equations will be created and used to calculate expected stock returns for each acquirer in the sample. Daily abnormal returns will be calculated by comparing actual and expected acquirer daily stock returns and then combined over event periods of fourteen days (-10 to +3) and three days (-1 to +1) to produce CAR values. Regression analysis will then be used to analyze changes in CAR values over time.

Summary of Hypotheses:

- **Hypothesis 1: Average cumulative abnormal return (CAR) values will become closer to zero over time for acquirers of Indian firms**
- **Hypothesis 2: Cross-border acquirers of Indian firms will create more value around acquisition announcement, as measured by cumulative abnormal stock returns, than domestic acquirers**
- **Hypothesis 3: Acquirers of private Indian firms will create more value around acquisition announcement, as measured by cumulative abnormal stock returns, than acquirers of public Indian firms**
- **Hypothesis 4: Small acquirers of Indian firms (which includes firms with revenue below the sample median prior to acquisition announcement) will create more value around acquisition announcement, as measured by cumulative abnormal stock returns, than large acquirers of Indian firms**

Methodology and Analysis

Variables used in this research include actual acquirer stock returns, expected acquirer stock returns, and abnormal acquirer stock returns. Abnormal returns are defined as the difference between actual acquirer stock returns and expected acquirer stock returns, as predicted by a Market Model equation. Abnormal acquirer stock returns measure unexpected shareholder value creation, as it is standard to consider acquisitions zero net present value (NPV) transactions for acquirers in efficient markets today. That is, acquirers are not expected to have abnormal stock returns around announcement date.

To obtain a list of historical mergers and acquisitions relevant to this research, Bloomberg's M&A database was used. To generate a representative list of mergers and acquisitions, the following search criteria were applied: announcement date range of January 1, 1986 to October 2018 (1986 was selected because it is five years prior to the lifting of many restrictions prohibiting M&A in Indian in 1991); deal type of M&A and majority purchase (acquirer intends to purchase more than 50% of the target firm at time of announcement); acquirers limited to public firms; and target firm country limited to India. Transactions meeting the above criteria were sorted by deal size, and the fifty-five transactions with the largest announced total value were selected for the sample. Acquisitions were omitted if determined to be strictly for financial purposes (acquirer sector listed as 'financials' on Bloomberg), no single acquirer purchased a majority stake in acquisitions with multiple acquirers, or necessary information was not available for an acquirer. The resulting sample of acquisitions had announcement dates ranging from 2000 to 2018.

Data to calculate actual stock returns for each acquirer in the sample were obtained through Bloomberg. Daily actual returns were calculated throughout event periods using the following formula: $\frac{(closing\ price_i - opening\ price_i)}{opening\ price_i}$. A fourteen-day (ten trading days prior to one

trading day post announcement date) and a three-day (one trading day prior to one trading day post announcement date) were used.

To calculate expected acquirer stock returns, the event study Market Model was used. The Market Model equation is: $R_{it} = \alpha_i + \beta_i R_{mt} + \varepsilon_{it}, \quad E(\varepsilon_{it}) = 0, \ var(\varepsilon_{it}) = \sigma^2_{\varepsilon_{it}}$, where R_{it} is the period t return on stock *i,* R_{mt} is the period t return on the market portfolio, and ε_{it} is the zero mean disturbance term. The market model parameters are α_i, β_i, and $\sigma^2_{\varepsilon_{it}}$, and they were estimated using ordinary least squares techniques (MacKinlay 18). A Market Model equation was created for each acquirer in the sample by regressing daily acquirer stock returns (dependent or "y" variable) on daily index returns (independent or "x" variable) over an estimation period of 283 to 22 trading days prior to acquisition announcement date. The index used to represent the market portfolio was selected based on the country in which the acquirer is incorporated. For example, the Nifty Fifty index was used for acquirers incorporated in India with stock listed on the National Stock Exchange of India, while the S&P 500 was used for acquirers incorporated in the United States. Index values were also found through Bloomberg.

The same index used to create the Market Model equation was then used to calculate daily index returns for each acquirer in the sample over the event periods. The following equation was used to calculate daily index returns, which estimate daily market portfolio returns: $\frac{(closing\ price_i - opening\ price_i)}{opening\ price_i}$. Daily market portfolio returns were then used as the independent variable in generated Market Model equations to calculate expected daily stock returns for each acquirer over the event periods. Expected daily stock returns were then subtracted from actual stock returns from corresponding dates to produce abnormal stock return values for each acquirer. Abnormal stock return values were then combined over both event periods to create cumulative abnormal return (CAR) values, one for the fourteen-day event period and one for the three-day event period.

$$CAR = \sum_{i=t_1}^{t_n} \left(R_{it} - \hat{R}_{it}\right)$$

[1] $\hat{R}_{it}$ = expected stock return for time t, α_i = intercept, β_i = measure of stock's market risk, R_{mt} = market return for time t, ε_{it} = zero mean disturbance term

[2] $\hat{R}_{it}$ = expected stock return for time t, R_{it} = actual stock return for time t, t_1 = first day of event period, t_n = last day of event period

Cumulative abnormal return (CAR) values were then analyzed using one- and two-sample t-tests and regression analysis to test the hypotheses listed above. The full sample of fifty-five acquisitions and subgroups were analyzed to see how CAR values change over time and if significant differences exist between groups. To examine changes in CAR values over time, independent variables of year (where 2000 = 1, 2001 = 2, 2002 = 3, …2018 = 19) and time periods of pre-2008, 2008-2011, and post-2011 were used. Acquirer revenue, announced total value, domestic versus cross-border acquirers, and acquirers of private versus public Indian firms were also examined as independent variables in regressions to explore their relationships with abnormal acquirer stock returns around announcement date.

Results

Overview

Of the fifty-five acquisitions in the sample, twelve were announced in the years 2000 to 2007 (pre-2008), fifteen were announced from 2008 to 2011, and twenty-eight were announced from 2012 to 2018 (post-2011). Twenty-three of the fifty-five acquisitions were domestic (both acquirer and target firm incorporated in India) and thirty-two were cross-border (acquirer incorporated outside of India and target firm incorporated in India). The full sample had an average cumulative abnormal return (CAR) value of -1.87% for the fourteen-day event period (-10 to +3) and an average CAR value of -1.05% for the three-day event period (-1 to +1). In one-sample t-tests where the null hypothesis stated that average CAR values equal zero, the average fourteen-day CAR value had a p-value of 0.1224, while the average three-day CAR value had a p-value of 0.1255. The negative average acquirer CAR values were different from results of previous research which found that acquirers of Indian firms had significantly positive abnormal stock returns around announcement date. The main difference between this research and previous research examined was the announcement dates of acquisitions studied, with this paper analyzing acquisitions with more recent announcement dates. This may indicate that opportunities for acquirers of Indian firms to earn abnormal positive stock returns around the announcement of an acquisition, on average, have disappeared over time. This will be explored further throughout this section.

To begin to examine differences in CAR values across time and between subgroups, average fourteen-day and three-day CAR values were compared over three time periods of pre-2008, 2008 to 2011, and post-2011 (based on findings by Banerjee et al. (2014)) and between subgroups of domestic versus cross-border acquirers, acquirers of private Indian firms versus acquirers of public Indian firms, and acquirers with annual revenue below the sample median

(small acquirers) versus acquirers with annual revenue above the sample median (large acquirers). Prior to 2008, the average fourteen-day CAR value was 2.06% for acquirers of Indian targets, while the average three-day CAR value was slightly negative at -0.08%. The pre-2008 group was most similar to samples in other available research on the subject in terms of dates considered, and although it was not significantly different from zero, the positive average fourteen-day CAR value resembled past findings. From 2008 to 2011, which coincides with the global financial crisis, the average fourteen-day CAR value was -6.18%, while the average three-day CAR value was -3.13%. In the post-2011 time period, average CAR values remained negative but had smaller absolute values than in the previous period, with an average fourteen-day CAR value of -1.24%, and an average three-day CAR value of -0.35%. The 2008 to 2011 fourteen-day average CAR value had a relatively small t-test p-value of 0.1034, while the post-2011 fourteen-day average CAR value had an even smaller t-test p-value of 0.0815. Although the post-2011 fourteen-day CAR value was significantly different than zero at the 0.10 alpha level, its negative value and magnitude were more similar to the zero-to-slightly negative short-term acquirer stock returns expected in developed markets.

Both domestic and cross-border acquirers had negative average fourteen-day and three-day CAR values. Domestic acquirers had less negative (smaller absolute value) average CAR values for both event periods, although the difference between the averages was not significant ($p = 0.98$), as measured by a two-sample t-test. This was still an unexpected result and opposed Hypothesis 2.

Acquirers of both private and public Indian targets also had negative average CAR values for the fourteen-day and three-day event periods, but the CAR values were less negative for acquirers of public firms in both event periods. This was also an unexpected result and contradicted Hypothesis 3, as previous research has consistently found that acquirers of private

target firms perform better around acquisition announcement. The average fourteen-day CAR value for acquirers of public Indian firms was approximately 3.24 percentage points higher than the average fourteen-day CAR value for acquirers of private Indian firms. There was some evidence that CAR values were different between the two subgroups with a p-value of 0.20.

Small and large acquirers, as measured by having annual revenues below or above the sample median prior to acquisition announcement, both had negative average CAR values for the two event periods studied, with larger acquirers having less negative average abnormal returns in both event periods. However, the 0.89 percentage point difference between the two fourteen-day average CAR values was not significant when compared using a two-sample t-test ($p = 0.72$). This was still an unexpected result and opposed Hypothesis 4, which states that small acquirers are predicted to create higher abnormal value around acquisition announcement due to managerial hubris in large acquirers.

Fourteen-day CAR values were more statistically significant than three-day CAR values and the focus of the remainder of this paper. Average cumulative abnormal return values, along with one-sample two-sided t-test statistical significance, are highlighted in Table 1 below.

Table 1: Average Acquirer Cumulative Abnormal Return (CAR) Values

	14-Day CAR	3-Day CAR	Sample Size
All Data	-1.87%*	-1.05%*	55
Pre-2008 Announcement Date	2.06%	-0.08%	12
2008-2011 Announcement Date	-6.18%*	-3.13%	15
Post-2011 Announcement Date	-1.24%**	-0.35%	28
Domestic Acquirers	-1.83%	-0.94%	23
Cross-Border Acquirers	-1.89%	-1.12%	32
Private Target Acquirers	-3.29%***	-1.20%*	29
Public Target Acquirers	-0.05%	-0.74%	25
Small Acquirers	-2.36%	-1.64%*	27
Large Acquirers	-1.47%	-0.52%	27

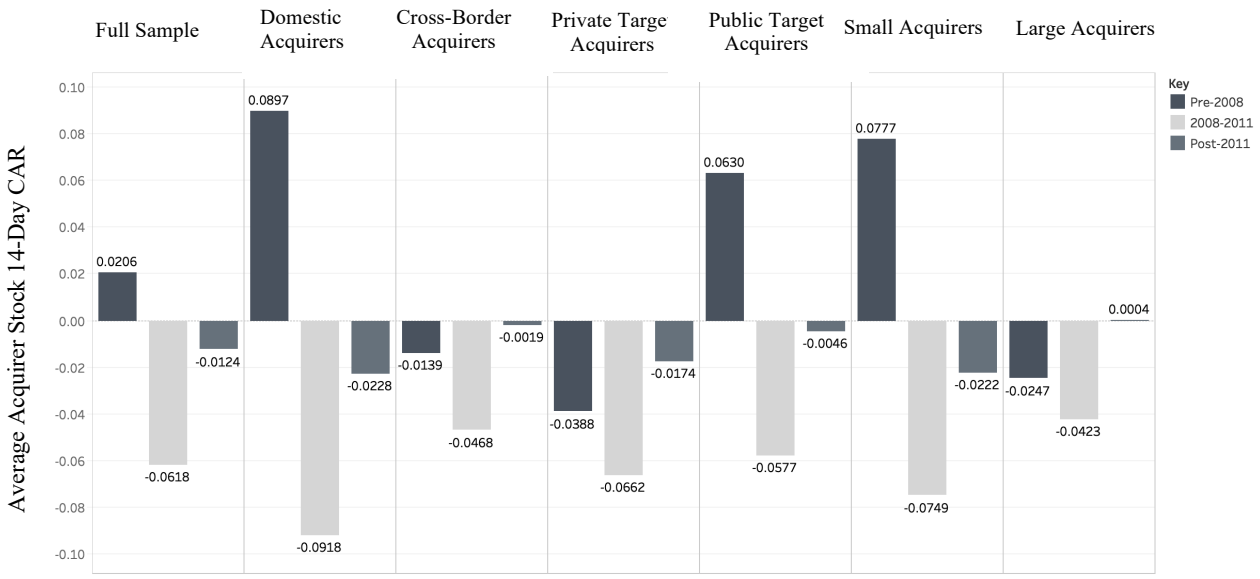
Significance Levels: *** $p < 0.05$, **$p < 0.10$, * $p < 0.20$

Average 14-Day CAR Values by Time Period

Next, changes in average fourteen-day CAR values were examined across the three time periods of pre-2008, 2008 to 2011, and post-2011 for the six subgroups of interest: domestic acquirers, cross-border acquirers, acquirers of private Indian firms, acquirers of public Indian firms, acquirers with annual revenues below the sample median (small acquirers), and acquirers with annual revenues above the sample median (large acquirers).

Prior to 2008, average fourteen-day CAR values were positive for the full sample, domestic acquirers, acquirers of public targets, and small acquirers. Additionally, the full sample and all subgroups had negative average CAR values from 2008 to 2011. In the post-2011 time period, the large acquirer subgroup had a positive average fourteen-day CAR value, although it was very small in magnitude, while the full sample and all other subgroups had negative average CAR values. In absolute value terms, post-2011 average CAR values were the smallest of the three time period averages for the full sample and each subgroup. In other words, post-2011 average CAR values are closest to zero, and a trend towards zero average cumulative abnormal returns around announcement date for acquirers of Indian target firms appears to exist.

Figure 1: Average 14-Day Acquirer CAR Values by Time Period



Cumulative Abnormal Return (CAR) Values over Time

Next, individual acquirer fourteen-day CAR values were examined by year to determine if trends exist and how potential trends might differ between subgroups. Full sample and subgroup acquirer CAR values were plotted against announcement year and trend lines were fit to the data. These trend lines represent simple regressions in the form of $CAR = intercept + slope * announcement\ year$. In Figures 2 through 8 below, each circle represents a single acquirer CAR value.

Figure 2: Full Sample – 14-Day CAR vs. Year

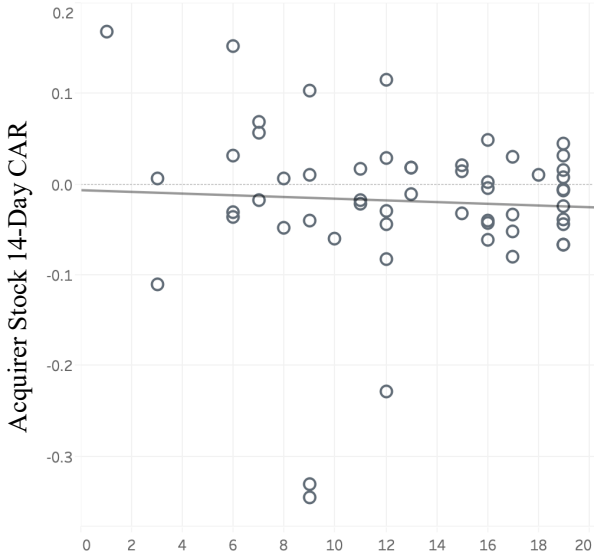


Figure 3: Domestic Acquirers – 14-Day CAR vs. Year

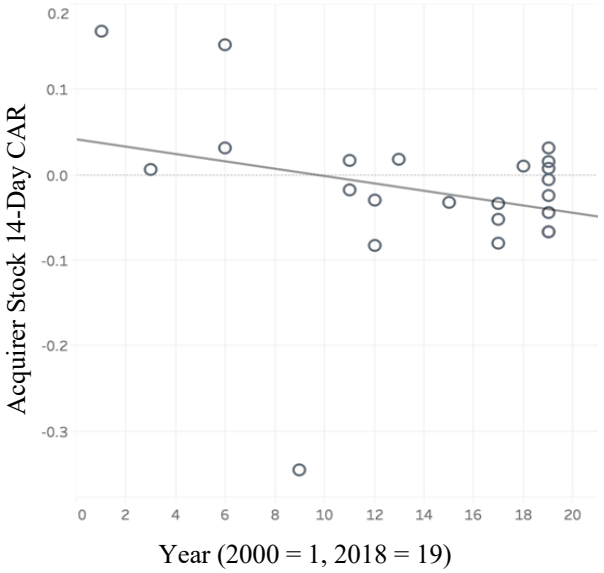


Figure 4: Cross-Border Acquirers – 14-Day CAR vs. Year

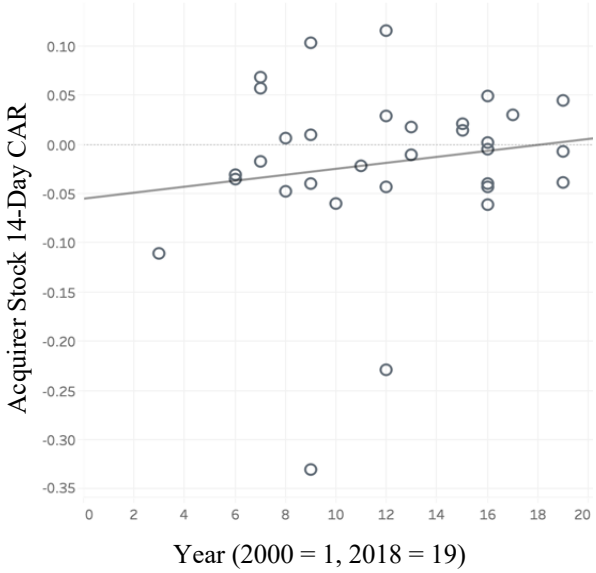


Figure 5: Private Target Acquirers – 14-Day CAR vs. Year

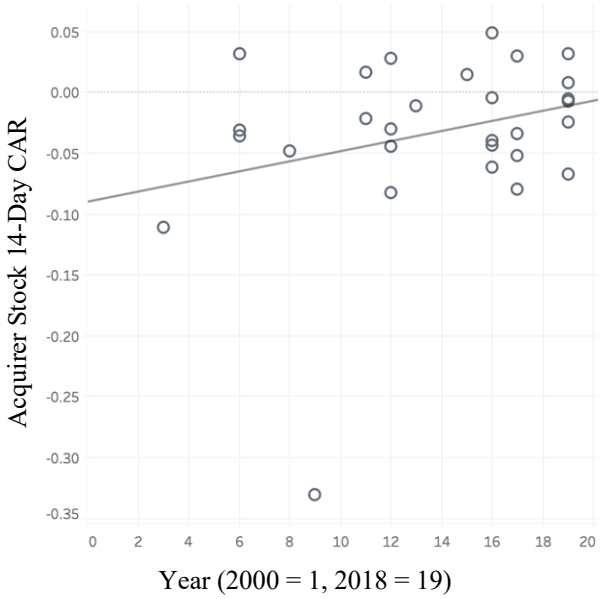


Figure 6: Public Target Acquirers – 14-Day CAR vs. Year

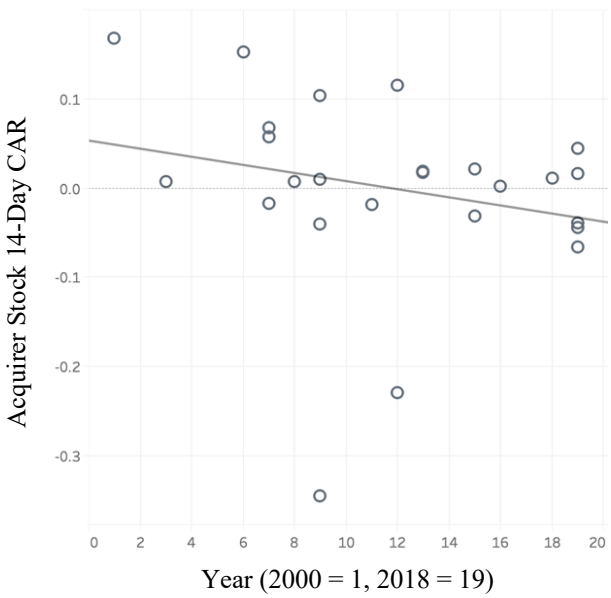


Figure 7: Small Acquirers – 14-Day CAR vs. Year

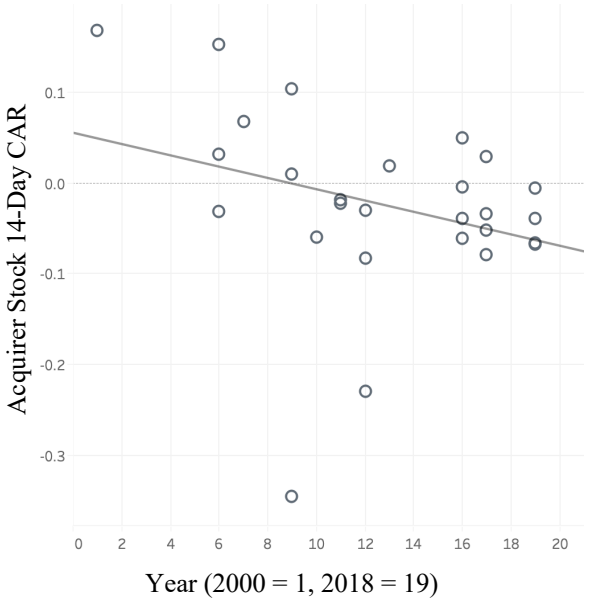
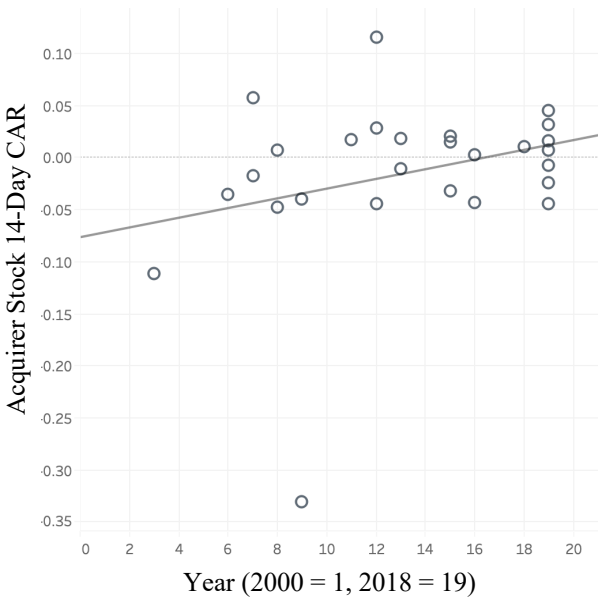


Figure 8: Large Acquirers – 14-Day CAR vs. Year



As seen in Figure 2 above, the trend line for the relationship between CAR values and year for the full data set was downward-sloping. However, the slope coefficient was not statistically significant, as seen in the data for Regression 1 (column 2) in Table 2 below. Differences in CAR value trends between subgroups are shown in Figures 3 through 8, where for each set of subgroups (domestic versus cross-border acquirers, acquirers of private targets versus acquirers of public targets, and small versus large acquirers) trend lines slope in opposite directions. The slope coefficients for acquirers of public targets, small acquirers, and large acquirers were all significant at an alpha level of 0.20.

Although the slope coefficients of these regressions were not statistically significant at small p-values, that may at least partially be due to the relatively small sample size. The trend lines above still indicate that there may be important differences in changes in CAR values over time between subgroups, especially when considering average CAR values prior to 2008 and trends over time. For the groups that had positive average CAR values prior to 2008 (the full sample, domestic acquirers, acquirers of public targets, and small acquirers), as seen in Figure 1, trend lines for the relationship between CAR values and year were downward-sloping.

Oppositely, for the groups that had negative average CAR values prior to 2008 (cross-border acquirers, acquirers of private targets, and large acquirers), trend lines for the relationship between CAR values and year were upward-sloping. Even without strong statistical significance, the fact that slope coefficients in trend lines were positive (negative) when average pre-2008 CAR values were negative (positive) supports the prediction that abnormal acquirer returns are trending toward zero over time in the Indian M&A market, as stated in Hypothesis 1.

Regressions with Year as Time Variable

In Table 2 below, Regressions 1 through 7 (columns 2 through 8) correspond with Figures 2 through 8 (pages 25-27) and are in the form of $CAR = intercept + slope * announcement\ year$ that was discussed in the previous section. Next, to explore if the relationship between CAR values and year strengthened when other explanatory variables were included in regressions, three to four additional explanatory variables were added to regression equations: log acquirer revenue, log announced total value, a dummy for private versus public target firms (where a dummy of one is used for acquisitions of public firms), and a dummy for domestic versus cross-border acquisitions (where a dummy of one is used for cross-border acquisitions).

In Table 2, Regressions 8 through 14 (columns 9 through 15) show that all slope coefficients maintained their respective signs when additional explanatory variables were added to regressions. Additionally, the magnitude of the respective year variable coefficients remained relatively similar between the two sets of regressions (single variable and multivariable). The domestic acquirer subgroup slope coefficient became significantly negative at the 0.20 alpha level with the inclusion of additional explanatory variables. Conversely, slope coefficients for the private-target acquirer and large acquirer subgroups were no longer significant at the 0.15 alpha level when additional explanatory variables were included in regressions. Overall,

accounting for additional variables did not strengthen the statistical significance of the relationship between CAR values and year, which could potentially be due to a degree of multi-collinearity between year and the other explanatory variables. As seen in Table 2, coefficients for the public target dummy variable were significantly positive in multiple regressions, which was a surprising result and contradicted Hypothesis 3.

Table 2: Summary of Regressions with Year as Time Variable (14-Day CAR Values)

Variables	1 All Data	2 Domestic Acquirers	3 Cross-Border Acquirers	4 Private Target Acquirers	5 Public Target Acquirers	6 Small Acquirers	7 Large Acquirers	8 All Data	9 Domestic Acquirers	10 Cross-Border Acquirers	11 Private Target Acquirers	12 Public Target Acquirers	13 Small Acquirers	14 Large Acquirers
Intercept	-0.0067 (-0.2012)	0.0416 (0.7942)	-0.0552 (-1.2375)	-0.0898*** (-2.2731)	0.0531 (1.0193)	0.0552 (1.0412)	-0.0765** (-1.8145)	-0.0568 (-0.2352)	-0.3008 (-0.6452)	-0.0898 (-0.2941)	-0.1629 (-0.6742)	-0.3043 (-0.5386)	-0.1397 (-0.2557)	-0.5040 (-1.1085)
Year (2000 = 1, 2018 = 19)	-0.0009 (-0.3885)	-0.0043 (-1.2309)	0.0030 (0.8637)	0.0042* (1.5201)	-0.0045 (-1.1254)	-0.0062* (-1.5916)	0.0047* (1.5582)	-0.0006 (-0.2306)	-0.0060* (-1.3851)	0.0038 (1.0466)	0.0037 (1.2100)	-0.0064 (-1.2047)	-0.0075* (-1.5641)	0.0037 (0.9128)
Log Acquirer Revenue								0.0154 (0.9285)	0.0157 (0.6604)	0.0252 (1.0451)	0.0148 (0.8978)	0.0222 (0.6746)	0.0086 (0.2032)	0.0758* (1.5711)
Log Announced Total Value (ATV)								-0.0449 (-1.1492)	0.0261 (0.4800)	-0.0286 (-0.8985)	-0.0069 (-0.2532)	0.0178 (0.2951)	0.0162 (0.2929)	-0.0448* (-1.5748)
Private vs. Public Dummy (Private = 0)								0.0340* (1.3196)	-0.0201 (-0.4020)	0.0550** (1.7741)			-0.0230 (-0.4508)	0.0670*** (2.2577)
Domestic vs. Cross-Border Dummy (Domestic = 0)								-0.0060 (-0.2198)			-0.0112 (-0.3587)	0.0111 (0.2372)	0.0101 (0.2152)	0.0140 (0.3772)
R-Squared	**0.0028**	**0.0673**	**0.0243**	**0.0788**	**0.0522**	**0.0920**	**0.0885**	**0.0528**	**0.1051**	**0.1589**	**0.1091**	**0.0862**	**0.1182**	**0.3184**
Adjusted R-Squared	**-0.0160**	**0.0229**	**-0.0083**	**0.0447**	**0.0110**	**0.0557**	**0.0521**	**-0.0459**	**-0.0937**	**0.0295**	**-0.0394**	**-0.0966**	**-0.1023**	**0.1561**

Significance Levels: *** p < 0.05, **p < 0.10 , * p < 0.20
In each box, top value is coefficient; value in parentheses is t-statistic

Regressions with Time Period Dummies as Explanatory Variables

Here, time periods of pre-2008, 2008-2011, and post-2011 were used to analyze changes in CAR values over time by using dummies for the 2008-2011 and post-2011 time periods. Again, these time periods were chosen because of evidence provided by Banerjee et al. (2014) regarding distinct periods in India's economic history and their alignment with the Global Financial Crisis.

First, regressions were generated with only the time period dummies serving as explanatory variables, and the results are shown in Regressions 1 through 7 (columns 2 through 8) in Table 3 below. These regressions correspond with Figure 1 on page 24, which highlights

average CAR values for the full sample and each subgroup over the three time periods analyzed. The coefficients on all dummy variables for the 2008-2011 time period were negative and many were statistically significant at the 0.05 alpha level. The signs on the post-2011 dummy variables follow a pattern similar to the one found when year was used as the variable for time: if a group had a positive average CAR value prior to 2008, the coefficient on the post-2011 dummy variable was negative, while if a group had a negative average CAR value prior to 2008, the coefficient on the post-2011 dummy variable was positive. In other words, if the coefficient on the year variable was positive (negative), the post-2011 dummy variable coefficient was positive (negative), which occurred when the average CAR value for the group was negative (positive) prior to 2008.

Similar to the multivariable regressions with year as the time variable, the inclusion of additional explanatory variables did not increase the significance of the relationship between CAR values and time periods. The signs on time period dummy variable coefficients remained the same when additional explanatory variables were added to regressions for all groups except large acquirers, where the sign changed on the post-2011 dummy variable in the multivariable regression as compared to the regression with only time period dummies. In general, the magnitude of coefficients on time period dummies also remained relatively similar when additional explanatory variables were included in regressions.

As was also found in the regressions with year as the time variable, the public target dummy variable coefficients were positive and significant at relatively low alpha levels, as seen in Table 3, which was an unexpected finding.

Table 3: Summary of Regressions with Time Period Dummies (14-Day CAR Values)

Variables	1 All Data	2 Domestic Acquirers	3 Cross-Border Acquirers	4 Private Target Acquirers	5 Public Target Acquirers	6 Small Acquirers	7 Large Acquirers	8 All Data	9 Domestic Acquirers	10 Cross-Border Acquirers	11 Private Target Acquirers	12 Public Target Acquirers	13 Small Acquirers	14 Large Acquirers
Intercept	0.0206 (0.8430)	0.0897*** (2.2892)	-0.0139 (-0.4623)	-0.0388 (-1.2672)	0.0630* (1.6735)	0.0777** (1.9430)	-0.0247 (-0.7866)	0.0110 (0.0468	-0.5151* (-1.3630)	-0.0126 (-0.0401)	-0.1081 (-0.4362)	-0.2580 (-0.4346)	-0.1937 (-0.3883)	-0.6573* (-1.3437)
2008-2011 Time Period Dummy	-0.0824*** (-2.5154)	-0.1815*** (-3.4533)	-0.0329 (-0.8132)	-0.0274 (-0.6827)	-0.1207*** (-2.2661)	-0.1526*** (-3.0583)	-0.0176 (-0.3951)	-0.0796*** (-2.3302)	-0.2178*** (-3.8177)	-0.0344 (-0.8344)	-0.0361 (-0.8447)	-0.1330*** (-2.2180)	-0.1642*** (-2.8839)	-0.0169 (-0.3956)
Post-2011 Time Period Dummy	-0.0329 (-1.1285)	-0.1125*** (-2.5332)	0.0121 (0.3195)	0.0214 (0.6151)	-0.0676* (-1.4030)	-0.1048*** (-2.2257)	0.0251 (0.6750)	-0.0271 (-0.8588)	-0.1563*** (-3.0512)	0.0214 (0.5574)	0.0125 (0.3351)	-0.0871 (-1.2763)	-0.1081** (-1.9626)	-0.0049 (-0.1113)
Log Acquirer Revenue								0.0133 (0.8453)	0.0164 (0.8753)	0.0221 (0.9100)	0.0176 (1.0663)	0.0086 (0.2660)	0.0276 (0.7122)	0.0937** (1.8427)
Log Announced Total Value (ATV)								-0.0160 (-0.6202)	0.0584 (1.3210)	-0.0287 (-0.9149)	-0.0096 (-0.3461)	0.0266 (0.4340)	0.0018 (0.0353)	-0.0408* (-1.3948)
Private vs. Public Dummy (Private = 0)								0.0346* (1.4209)	-0.0449 (-1.1491)	0.0590** (1.8892)			0.0126 (0.2722)	0.0716*** (2.2794)
Domestic vs. Cross-Border Dummy (Domestic = 0)								-0.0019 (-0.0730)			-0.0228 (-0.7666)	0.0270 (0.5844)	0.0099 (0.2329)	-0.0062 (-0.1776)
R-Squared	**0.1133**	**0.3759**	**0.0541**	**0.0898**	**0.1902**	**0.2812**	**0.0569**	**0.1572**	**0.4704**	**0.1931**	**0.1413**	**0.2215**	**0.3124**	**0.2974**
Adjusted R-Squared	**0.0792**	**0.3135**	**-0.0111**	**0.0197**	**0.1166**	**0.2213**	**-0.0217**	**0.0497**	**0.3146**	**0.0317**	**-0.0454**	**0.0166**	**0.0953**	**0.0866**

Significance Levels: *** $p < 0.05$, **$p < 0.10$, * $p < 0.20$
In each box, top value is coefficient; value in parentheses is t-statistic

Discussion

Overview of Average CAR Values

This research analyzes fifty-five acquisitions of Indian target firms with announcement dates from 2000 to 2018, providing some of the most up-to-date insights on abnormal acquirer value creation around announcement date, as measured by abnormal stock returns, that could be found. Initially, cumulative abnormal return (CAR) values were calculated for two event periods of different lengths: fourteen days (-10 to +3) and three days (-1 to +1). CAR values for the fourteen-day event period were more statistically significant and the main focus of this paper, while additional information on three-day event period results can be found in the appendices.

For the fourteen-day event period, the average cumulative abnormal return (CAR) value for the full sample was -1.87%, which produced a p-value of 0.1224 in a two-sided one-sample t-test. When broken into time periods, the twelve acquisitions that were announced prior to 2008 had a positive average fourteen-day CAR value of 2.06%, but it was not significantly different from zero ($p = 0.3981$). The fifteen acquisitions that were announced from 2008 to 2011 had a negative average fourteen-day CAR value of -6.18%, which produced a two-sided t-test p-value of 0.1034. A majority of the acquisitions in the sample, twenty-eight, had announcement dates that occurred post-2011. The average fourteen-day CAR value for this time period was -1.24% (two-sided t-test p-value = 0.0815).

In previously published research that analyzed mergers and acquisitions involving Indian target firms with announcement dates from 1992 to 2002, acquirer CAR values around announcement date were found to be significantly greater than zero. Other research also found that Indian acquirer firms earned positive abnormal returns around announcement date from 1995 to 2007. In this paper, the pre-2008 group was most similar to previous research in terms of announcement dates considered, so the fact that the average CAR value for that time period was

positive, but not statistically significant, was partially consistent with previous results. Because the full-sample had an average CAR value of -1.87%, which produced a p-value of 0.1224 in a two-sided t-test, and the post-2011 acquisition group had an average CAR value that was negative and statistically significant at the 0.10 alpha level, results of this paper differed from previous findings on the subject. These differences may indicate that Indian economic efficiency and M&A market saturation have increased over time. These changes could have weakened the ability of acquirers of Indian firms to earn positive abnormal returns upon acquisition announcement and instead led to zero-to-slightly negative abnormal value creation, which is a typical result in developed-country M&A markets and may indicate India's own M&A market development. These findings supported Hypothesis 1.

When average abnormal value creation around announcement date was compared for subgroups within the data sample, domestic acquirers had a less negative average CAR value than cross-border acquirers. Although the two average values were not significantly different, this was still an unexpected result and opposed Hypothesis 2, as previous research found that cross-border acquirers of Indian firms performed better around acquisition announcement. Additionally, acquirers of public target firms had a less negative average CAR value than acquirers of private firms (two-sample t-test p-value = 0.20), which opposed Hypothesis 3 and was a particularly unexpected result due to the consistent finding of a private company valuation discount in other research. Large acquirers also had a less negative average fourteen-day CAR value than small acquirers, which opposed Hypothesis 4 and was unexpected due to previous findings of large-firm managerial hubris in acquisitions.

These results require further exploration to determine if they uncovered reliable, and potentially extremely useful, insights, or if they should just be attributed to a relatively small

sample size. If they are determined to be reliable and potentially uncover unique characteristics of the Indian M&A market, factors that could lead to these anomalies should also be researched.

Progression of Average CAR Values Over Time

Next, the full sample was divided into subgroups based on acquisition characteristics, and average CAR values over time were analyzed. Figure 1 shows that the greatest variation in average CAR values occurred prior to 2008, where the full sample, domestic acquirers, acquirers of public target firms, and small acquirers all had positive average CAR values, while cross-border acquirers, acquirers of private target firms, and large acquirers had negative average CAR values. The full sample and all subgroups had negative average CAR values for the 2008 to 2011 time period, which was most likely due to the Global Financial Crisis and shows that India was affected by the global recession, highlighting the country's connection to the global economy. The full sample and all subgroups, except large acquirers, had negative average CAR values for the post-2011 time period.

For the full sample and all subgroups, the post-2011 average CAR values had the smallest absolute values when compared to respective pre-2008 and 2008 to 2011 average CAR values. In other words, post-2011 average CAR values were closer to zero in terms of magnitude. For the full sample and the six subgroups analyzed, there is a defined trend of average CAR values moving closer to zero over the time periods analyzed, as seen in Figure 1. Although differences between average CAR values in varying time periods were not statistically significant in all cases (as denoted in regressions 1 through 7 in Table 3), there still appears to be a trend toward zero average CAR values, and statistical significance could potentially increase with a larger sample size, which would be ideal for this research. Again, the transition toward average CAR values that were closer to zero, or smaller in magnitude, could represent the progression of the Indian M&A market toward a more-developed M&A system. By the post-

2011 time period, average CAR returns for the full sample and all subgroups more closely resembled expected abnormal returns to acquirers around acquisition announcement in developed countries.

Regressions with Year as Explanatory Variable

As seen in Figures 2 through 8, regressions for the full sample and six subgroups that examine the relationship between year and individual fourteen-day CAR values sloped in different directions. Full sample, domestic acquirers, acquirers of public targets, and small acquirers had downward-sloping regression lines, while cross-border acquirers, acquirers of private targets, and large acquirers had upward-sloping regression lines. Slopes for acquirers of private targets, small acquirers, and large acquirers were significant at the 0.20 alpha level, as seen in Table 2. Although increased statistical significance would strengthen findings, significance could potentially be improved with a larger sample size. All groups with downward-sloping regressions had positive average fourteen-day CAR values prior to 2008, while all groups with upward-sloping regressions had negative average fourteen-day CAR values prior to 2008. This finding strengthens Hypothesis 1, which predicts that average CAR values around announcement date for acquirers of Indian firms are trending toward zero over time or becoming more consistent with abnormal returns around announcement date for acquirers in developed markets.

When adding additional explanatory variables to regressions with year as the variable for time, the relationship between year and CAR values did not change significantly. The sign on all year variable coefficients remained the same and the magnitude of the coefficients also remained relatively similar. At the same time, statistical significance of the coefficients did not improve when additional explanatory variables were included in regressions. This could be due to

moderate multi-collinearity between year and other explanatory variables but was not a major concern because coefficient values were not heavily influenced.

As seen in Table 2, r-squared values, which indicate the proportion of variance in CAR values explained by independent variables used in regressions, typically increased when additional explanatory variables were added to regressions but were still relatively small. Additionally, adjusted r-squared values were significantly smaller than unadjusted r-squared values. Although the multivariable regressions included many of the most common, and significant, predictors of CAR values, a large portion of the variation in abnormal returns to acquirers of Indian firms around announcement date remained unexplained by these models. Adding other explanatory variables to regressions that better explain the variation in CAR values over time would be a main goal of future research.

Regressions with Time Period Dummies as Explanatory Variables

Table 3 provides an overview of regressions that include dummies for time periods of 2008 to 2011 and post-2011 (compared to pre-2008). Large variation in average fourteen-day CAR values between groups existed prior to 2008, when the full sample and three subgroups had positive average CAR values, while the remaining three subgroups had negative average CAR values. From 2008 to 2011, the full sample and all groups had negative average fourteen-day CAR values. This time period coincides with the Global Financial Crisis, and the fact that averages in this period were much more negative than those for the pre-2008 and post-2011 time periods indicates that the crisis affected India's M&A market and highlights India's connectedness with the global economy. Post-2011 average CAR values were also negative for the full sample and all subgroups, except large acquirers, which had a very small positive average CAR value of 0.04%. There was a reduction in the magnitude of average CAR values through time periods analyzed, with post-2011 averages closest to zero (in terms of magnitude).

Although not all differences between time periods were statistically significant (shown in regressions 1 through 7 in Table 3), many were, and a trend toward smaller-magnitude average CAR values was apparent. This evidence supports Hypothesis 1, which predicts that average CAR values around announcement date for acquirers of Indian firms are trending toward those of acquirers in developed-country M&A markets, which are expected to be zero-to-slightly negative. This progression of average CAR values is shown visually in Figure 1.

When adding additional explanatory variables to regressions with time period dummies, the relationship between time period and CAR values did not greatly change in most cases. The signs on all time period dummy coefficients remained the same for all groups, expect large acquirers, when additional explanatory variables were included. The magnitude of coefficients also remained relatively similar. Still, statistical significance of time period dummy coefficients did not improve when additional explanatory variables were included in regressions, which could be due to moderate multi-collinearity between time period dummies and other explanatory variables, as already mentioned above.

Based on r-squared and adjusted r-squared values, regressions using time period dummies appear to explain the variation in CAR values better than those using year as the time variable. Despite the improvement, r-squared values were still relatively low when time period dummies were used, and although they increased when additional explanatory variables were added, they remained relatively small. Adjusted r-squared values were also significantly smaller than unadjusted r-squared values for the multivariable regressions. Because of this, once again, a main goal of future research would be to improve regressions and account for a greater portion of variation in CAR values by adding stronger explanatory variables.

Implications and Future Research

Through this paper, evidence has been presented to show that the Indian M&A market is potentially becoming more like a developed-country M&A market over time, at least for acquirers of Indian firms. This is most likely due to increased competition in the Indian M&A market since 1991, when the New Industrial Policy was enacted as the first step in liberalizing the Indian economy, and the early 2000s, which is argued to be the time period in which the Indian economy and M&A market were truly freed. Because average acquirer cumulative abnormal returns around announcement date appear to be shrinking in magnitude over time, the Indian M&A market can be considered more predictable today. This means that the likelihood of acquirers earning large abnormally positive or negative returns around announcement of the acquisition of an Indian firm has decreased over time.

If the Indian M&A market is truly functioning more like a developed-nation M&A market today, it can be argued that M&A activity in the country will continue to expand as developed countries, like the United States, account for the largest percentage of global M&A activity in the world. Companies potentially interested in acquiring an Indian firm can use this research to see how the market has changed over time and how acquirers today, on average, are performing around acquisition announcement. This paper can also show companies which acquirer and acquisition characteristics have led to the most success in the past and then assist them in making decisions accordingly.

Future research should focus on examining up-to-date abnormal returns, or value creation, around announcement date for acquirers of Indian firms, but with a larger sample size, as that is the most limiting factor of this paper. Additionally, future research should seek to find explanatory variables that better explain the variation in CAR values for acquirers of Indian firms and include those in regressions that result in larger adjusted r-squared values. Lastly,

future research could examine different features of the Indian M&A market that may potentially explain the finding that acquirers of public Indian firms created more abnormal value around announcement date than acquirers of private Indian firms, as this was a very unexpected result.

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Appendices

Table 4: Summary of Regressions with Year as Time Variable (3-Day CAR Values)

Variables	1 All Data	2 Domestic Acquirers	3 Cross-Border Acquirers	4 Private Target Acquirers	5 Public Target Acquirers	6 Small Acquirers	7 Large Acquirers	8 All Data	9 Domestic Acquirers	10 Cross-Border Acquirers	11 Private Target Acquirers	12 Public Target Acquirers	13 Small Acquirers	14 Large Acquirers
Intercept	-0.01705 (-0.90871)	-0.00882 (-0.32870)	-0.02505 (-0.89405)	-0.04399** (-1.75724)	0.00502 (0.17264)	-0.00543 (-0.17085)	-0.03402* (-1.46284)	-0.08807 (-0.64454)	-0.34274* (-1.52104)	-0.07054 (-0.36284)	-0.04259 (-0.27608)	-0.43811* (-1.51527)	-0.28244 (-0.89354)	-0.21130 (-0.78948)
Year (2000 = 1, 2018 = 19)	0.00051 (0.37559)	-0.00004 (-0.02421)	0.00115 (0.52361)	0.00233* (1.34931)	-0.00105 (-0.46641)	-0.00087 (-0.36934)	0.00217 (1.31603)	0.00023 (0.15262)	-0.00184 (-0.88595)	0.00142 (0.60925)	0.00199 (1.01953)	-0.00337 (-1.24859)	-0.0023 (-0.82952)	0.00117 (0.48653)
Log Acquirer Revenue								0.01427* (1.52508)	0.01219 (1.06173)	0.02161* (1.40514)	0.00533 (0.50618)	0.03296** (1.95871)	0.02113 (0.86649)	0.03278 (1.15409)
Log Announced Total Value (ATV)								-0.00731 (-0.47637)	0.0297 (1.12926)	-0.02075 (-1.02323)	-0.00507 (-0.29226)	0.01690 (0.54758)	0.01357 (0.42349)	-0.01846 (-1.10351)
Private vs. Public Dummy (Private = 0)								0.00704 (0.48247)	-0.02921 (-1.20623)	0.02073 (1.05007)			-0.02717 (-0.92014)	0.02893* (1.65661)
Domestic vs. Cross-Border Dummy (Domestic = 0)								-0.00666 (-0.43073)			-0.00873 (-0.43674)	0.00160 (0.06663)	-0.00286 (-0.1051)	-0.00460 (-0.21035)
R-Squared	**0.00266**	**0.00003**	**0.00906**	**0.06317**	**0.00937**	**0.00543**	**0.06479**	**0.05140**	**0.14561**	**0.11485**	**0.07900**	**0.19609**	**0.09903**	**0.20449**
Adjusted R-Squared	**-0.01616**	**-0.04759**	**-0.02398**	**0.02847**	**-0.0337**	**-0.03436**	**0.02738**	**-0.04741**	**-0.04426**	**-0.02133**	**-0.0745**	**0.03531**	**-0.12622**	**0.01508**

Significance Levels: *** p < 0.05, **p < 0.10 , * p < 0.20
In each box, top value is coefficient; value in parentheses is t-statistic

Table 5: Summary of Regressions with Time Period Dummies (3-Day CAR Values)

Variables	1 All Data	2 Domestic Acquirers	3 Cross-Border Acquirers	4 Private Target Acquirers	5 Public Target Acquirers	6 Small Acquirers	7 Large Acquirers	8 All Data	9 Domestic Acquirers	10 Cross-Border Acquirers	11 Private Target Acquirers	12 Public Target Acquirers	13 Small Acquirers	14 Large Acquirers
Intercept	-0.00079 (-0.05536)	0.00843 (0.35539)	-0.00539 (-0.29113)	-0.01206 (-0.6256)	0.00727 (0.32719)	0.00447 (0.17124)	-0.00655 (-0.38551)	-0.05755 (-0.42227)	-0.41082** (-1.87887)	-0.00718 (-0.03672)	-0.00307 (-0.01959)	-0.42293 (-1.29097)	-0.29402 (-0.92272)	-0.24424 (-0.87004)
2008-2011 Time Period Dummy	-0.03052* (-1.60269)	-0.03675 (-1.15499)	-0.0274 (-1.10259)	-0.02151 (-0.85212)	-0.03434 (-1.09353)	-0.04037 (-1.23896)	-0.01786 (-0.74355)	-0.02918* (-1.46674)	-0.06413** (-1.94311)	-0.02695 (-1.04652)	-0.02769 (-1.02267)	-0.04042 (-1.2221)	-0.04695 (-1.29111)	-0.01909 (-0.77678)
Post-2011 Time Period Dummy	-0.00269 (-0.15885)	-0.01621 (-0.60275)	0.00621 (0.26753)	0.00902 (0.41118)	-0.01142 (-0.40211)	-0.01541 (-0.50132)	0.00953 (0.4742)	-0.00427 (-0.23187)	-0.04893* (-1.65165)	0.01001 (0.41715)	0.00285 (0.12083)	-0.03895 (-1.0349)	-0.02838 (-0.80628)	-0.00639 (-0.25136)
Log Acquirer Revenue								0.01339* (1.45638)	0.01258 (1.16369)	0.01913 (1.26040)	0.00719 (0.68664)	0.02910* (1.63005)	0.02657 (1.07254)	0.03796 (1.30122)
Log Announced Total Value (ATV)								-0.00847 (-0.56412)	0.03964* (1.55036)	-0.02298 (-1.1705)	-0.00754 (-0.42968)	0.01797 (0.53117)	0.00853 (0.26427)	-0.01769 (-1.05291)
Private vs. Public Dummy (Private = 0)								0.00721 (0.50762)	-0.03673* (-1.62514)	0.02394 (1.22736)			-0.0151 (-0.51124)	0.02900* (1.60987)
Domestic vs. Cross-Border Dummy (Domestic = 0)								-0.00503 (-0.33438)			-0.01553 (-0.82381)	0.00459 (0.17986)	-0.00281 (-0.10305)	-0.01128 (-0.56677)
R-Squared	**0.06684**	**0.06442**	**0.08035**	**0.08728**	**0.05396**	**0.06812**	**0.07212**	**0.10441**	**0.27528**	**0.18342**	**0.12809**	**0.20345**	**0.14321**	**0.22074**
Adjusted R-Squared	**0.03095**	**-0.02914**	**0.01693**	**0.01708**	**-0.03205**	**-0.00953**	**-0.00521**	**-0.00992**	**0.06213**	**0.02010**	**-0.06146**	**-0.00617**	**-0.12736**	**-0.01303**

Significance Levels: *** p < 0.05, **p < 0.10 , * p < 0.20
In each box, top value is coefficient; value in parentheses is t-statistic